

Canopy

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Primate Conservation MSc
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Canopy

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Oxford Brookes University

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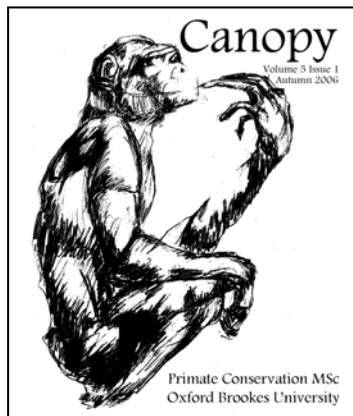
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MSc Primate Conservation
<http://ssl.brookes.ac.uk/primate/home.htm>

Front cover illustration

Sarah Fowkes
of *Pan troglodytes*

This issue of *Canopy* is printed on recycled paper



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Letter from the Editors

A very warm welcome to the Winter 2006 issue of *Canopy*, in – house journal of the Primate Conservation MSc at Oxford Brookes University. The MSc continues to bring together an ethnically diverse group of people, all with one goal in mind; a better future for primates and their habitats. This year sees the numbers rise to 39 students from 13 countries, with scholarships being given to three students from primate habitat countries. George Owoyesigire from Uganda writes about his experience of human – chimpanzee conflict around the Kibale National Park, western Uganda (page 9).

Canopy highlights the endeavours of past and present students. Each year, students have a direct, positive impact on primate populations and local communities through their independent research. The bushmeat trade in Africa; palm-oil plantations in Indonesia; environmental education; human – wildlife conflict; surveys of Critically Endangered species; captive – animal welfare and rehabilitation; these are all important conservation issues about to be undertaken by this year's cohort. Some will involve species on the IUCN/SSC 2006 – 2008 Top 25 Most Endangered Species List (page 7).

Congratulations go to Dr Kate Hill (Human Wildlife Conflict issues module leader) and Dr Anna Nekaris (MSc course leader), who have both been promoted to Readers in Anthropology. As we welcome Dr. Kate Hill back from sabbatical, she talks to us about her work in Uganda over the past year (page 3). Through the experience and dedication of the teaching staff, and guest speakers invited to a weekly seminar series (page 26), MSc students are given the grounding necessary to become professional primatologists and conservation biologists.

We hope this issue goes some way to encouraging current students to persist in their work, inspires many more students of the future, and shares the achievements of the Primate Conservation MSc with the wider primatological community.

Best wishes,

Johan Karlsson (Sweden)
Nasreen Aziz (Egypt)
Abigail Baird (UK)
Tallulah Bygraves (UK)
Jennifer Campbell (USA)
David Dellatore (USA)
Sarah Fowkes (UK)
Patricia Gilmore (USA)
George Owoyesigire (Uganda)
James Thorn (UK)

Letter from the Course Team

Canopy is produced twice each year by our MSc students and is designed to bring their conservation work to the attention of a wider audience. The course also has an active web page (<http://ssl.brookes.ac.uk/primate/lecture-series.htm>) where you can find staff and student profiles and learn about our modules and public seminars. Weekly talks on conservation issues are held on Monday evenings from 6-7 pm in the Lloyd Boardroom of the Headington Campus in Oxford and are open to all.

The success of the MSc, which has been running since the year 2000 and has 39 students registered for the year 2006/2007, has had a major influence on the recruitment of research students but it can be difficult to extend your qualifications to a PhD in the fields of primatology and conservation. Here we provide you with a brief guide.

PhD prospects at Oxford Brookes

As you may know there are a number of obstacles to gaining places on PhD programmes, both here and in other countries. We have noted a few of them below in the hope that it will help you to decide how best to proceed if you have set your heart on a PhD. It may be that you want to follow up on some of these ideas - in which case we will be pleased to hear from you in the future.

1. It is now extremely hard to get funding for certain areas of research in the UK, with up to 20 applications submitted for every grant given, so the main obstacle to doing a PhD is how to get the money. Funded projects do not always suit your

skills and interests but the alternative may be a part-time PhD, which can be very stressful, or another form of self-funding.

2. Once you have money then things get easier. At Oxford Brookes we have two kinds of PhD programme, one via enrolment and registration onto a PhD by thesis (full-time or part-time) and the other by Published Work (see Research Degrees on www.brookes.ac.uk). The last option is good if you are able to publish a number of journal articles over the years and then draw them together and submit them as an equivalent to a PhD thesis (using a synoptic overview to tie them together into an integrated theme).
3. A full time PhD normally takes 4 years while a part time degree can take 7-8 years to complete. You will need to set a realistic, but strict deadline, and set aside quality time to achieve success, especially when analysing your results and writing up.
4. The usual PhD programme at Oxford Brookes usually involves enrolment, registration of your research proposal via the University Research Committee and approval of transfer from MPhil to PhD by the same committee. In order to enrol applicants it is essential to put together an effective supervisory team (experience and expertise in your sub-field being vital). If we have someone willing and able to supervise your area of interest then this represents a good starting point! Enrolment has to be agreed by the Research Co-ordinator of the School

of Social Sciences and Law, and the number of places may be limited. External supervisors and advisors may be used where appropriate.

5. If you have completed an MPhil dissertation by research, this may allow you to apply to go direct for a PhD without going through an MPhil

stage – but only if the dissertation is in the same area of research and leads logically to the PhD.

If you have further questions, please do not hesitate to contact us.

Best wishes,
Simon Bearder



Human wildlife conflict in Uganda: The work of Dr Kate Hill of Oxford Brookes University.

Abigail Baird

Conflict exists wherever people and animals live in close proximity and are in competition for resources. It is not a new phenomenon, but has only recently been examined in any depth. One aspect of human wildlife conflict is the issue of crop raiding. Crop raiders, including many primates, can damage and destroy farmers' food and cash crops. Larger crop raiders have also been known to threaten the lives of both people and their livestock and therefore may be shot on sight.

Dr Kate Hill of Oxford Brookes University has been researching the numerous issues that surround human wildlife conflict for many years. After receiving a Promising Research Fellowship from Oxford Brookes and a Project Research Grant from The Leverhulme Trust last year, Kate and a team of two PhD students have begun a three year project studying human wildlife conflict, using Uganda as a case study. The main focus is to research the inter-relationships between human population change, land use strategies, landscape changes, socio-economic changes and agricultural development and how these impact on people-wildlife interactions. A third PhD student associated with the project is looking specifically at developing ways to reduce human wildlife conflict. Receiving a Promising Researcher Fellowship has also enabled Dr Kate Hill to be based at the University College of London to work with Professor Katherine Homewood, a leading authority on pastoralists and land use issues in East Africa.

In the first year of the project Kate Hill and the students visited Uganda to identify forest farming sites within Hoima District that might make good study sites. A range

of different sites were surveyed and eventually the final study sites decided upon, based on surveys completed mainly by two of the students. Research permits had already been obtained prior to the beginning of the project, but the students now needed to obtain the appropriate permissions to work in specific villages and forest patches, which they duly did. However, in this area there has been a relatively poor history of people from outside arriving, asking questions, and then just leaving, with little information about why they were there or the relevance of their work to local people. Thus, not surprisingly, local people were initially wary about the proposed research and research activities. Consequently the two students working at this particular site decided on a course of action to visit and talk with every household within the study area to explain the proposed work, how it would be used, and also to give people an opportunity to ask the researchers questions. Whilst this was extremely time-consuming rapport building is a vital part of any such research project, and thus could not be ignored.

The first student, Matt McClennan, a past Primate Conservation MSc student, is studying the effect that habitat fragmentation has on chimpanzee feeding and ranging ecology in small forest fragments in the Hoima district. He is looking specifically at areas where chimpanzees are reported to crop raid, and is trying to answer the important question of whether these animals crop raid because human crops represent a preferred or energetically optimal food resource, or whether they are forced to do it because of inadequate availability of natural foods throughout or at specific times of the year.

The second student, Karen Hiser is studying the farming in the communities around the forest patches that Matt is working inside. She is primarily interested in the farming methods adopted locally

and decisions about crop types, locations and farming strategies, and the impact that crop raiding may have on their livelihoods, given that people at this site are increasingly operating in a changing socio-economic environment.

The third student, Graham Wallace (who has also been funded by the Leverhulme Trust) also went to Uganda in January to visit the Budungo Forest in the Masindi district to look at the interactions between people and animals during crop raiding events. The idea is to identify areas where people's behaviour may be manipulated in such a way as to reduce the amount of time primates are able to remain on the field, thus reducing their capacity for crop damage. Preliminary analyses of Graham's data from his first field season suggest that even when farmers are present on the farm they are not always detecting primates that enter the farm to feed on the crops. Information like this is obviously useful when working with farmers in order to develop more effective ways of protecting their crops against these intelligent and persistent animals.

Graham's research, and that of Karen and Matt, comes out of another doctoral study by Amanda Webber, another ex MSc student now completing her PhD with Kate and Stewart Thompson. Amanda's research focuses on local people's perceptions and understandings of people-wildlife interactions around the Budungo Forest Reserve, Uganda, and provides an opportunity for evaluation of the situation over time, through comparison of her results with those of Kate, who worked in the same villages more than 10 years previously. Graham is currently working with some of the farmers who were also part of Amanda's study, thus his work benefits from Amanda's detailed knowledge of local attitudes and perceptions, and the process provides a degree of continuity for the farmer-researcher relationship that has often been

missing in the past, where people arrive, complete their studies, and then disappear, never to be seen or heard of again by their host population.

Kate's role in the grand scheme of things is to use each of the case studies developed by the students to begin to examine some of the broader issues, as outlined above, i.e. the possible inter-relationships between human population density, land tenure systems, changing land use strategies, changing socio-economic environments and their implications for current and future people-wildlife interactions in Uganda.



A farmer demonstrating the damage that wildlife has caused to his crops. Photograph by Kate Hill.

As part of that she is currently examining historical information about human-wildlife conflict in Uganda by searching through old papers and reports, including the Game Department (now Uganda Wildlife Authority) annual reports from the early 1920s onwards. The information gained from these activities is to establish what has been reported as conflict and also the presence and absence of different wildlife species in the region (where they have been reported). This information will be used in conjunction with information from old travel writings, the Ugandan Government Bureau of Statistics, details of land law, development initiatives and GIS analyses of land use change to examine the likely interaction of these various factors within an historical context. Additionally, interview data from representatives of the

various stakeholder groups, including farmers, Development and Conservation NGOs, Ugandan government agencies will be used to examine the process by which people-wildlife interactions become human-wildlife conflict situations.

Year 2 of the project has seen Matt and Karen returning to the field for their main data collection periods (Graham will return to Budongo before the end of the year). Graham will now use the information gleaned about how farmers and primates currently interact on farms to work with farmers to try and develop a set of conflict mitigation tools to reduce the impact of crop raiding on local people's livelihood security. Kate is currently preparing to go back to Uganda to interview representatives from Conservation NGO's (Non Governmental Organisations) and Ugandan government agencies to understand the wildlife and land law of the

area and community access to natural resources.

Year 3 of the project will see Kate Hill visiting the villages where Matt and Karen have carried out their studies, to gain more information about the historical aspects of land use and the local history of people-wildlife interactions.

Crop raiding by wildlife is an issue that needs to be addressed. The problem has intensified partially as human populations rise and greater pressure and competition is placed on natural resources. However, in recent years ideas about conservation have changed and people have realised that if biodiversity is to be maintained, the local community cannot just be ignored. The work of Dr Kate Hill has been to encompass the needs of both people and wildlife to provide a greater understanding of the issues and strategies that may be developed to resolve some of those issues.



A Bornean orang-utan (*Pongo pygmaeus*) male and female. Photograph by Andrea Molyneaux

The World's Top 25 Most Endangered Primates 2006

Tallulah Bygraves

AFRICA		
<i>Galagoides rondoensis</i>	Rondo dwarf galago	SW Tanzania
<i>Procolobus pennantii pennantii</i>	Pennant's red colobus	Equatorial Guinea (Bioko Is)
<i>Procolobus rufomitratus</i>	Tana River red colobus	Kenya
<i>Procolobus badius waldroni</i>	Miss Waldron's red colobus	Ghana
<i>Rungwecebus kipunji</i>	Highland mangabey	Tanzania
<i>Cercopithecus diana</i>	Roloway monkey	Ghana
<i>Gorilla gorilla diehli</i>	Cross River gorilla	Cameroon, Nigeria
ASIA		
<i>Tarsius sp.</i>	Siau Island tarsier	Siau Is
<i>Loris lydekkerianus</i>	Horton Plains slender loris	Sri Lanka
<i>nycticeboides</i>		
<i>Simius concolor</i>	Pig-tailed langur	Indonesia (Mentawi Is)
<i>Trachypithecus delacouri</i>	Delacour's langur	Vietnam
<i>Trachypithecus p. poliocephalus</i>	Tonkin hooded black langur	China, Vietnam
<i>Semnopithecus vetulus nestor</i>	Western purple-faced langur	Sri Lanka
<i>Pygathrix nemaeus cinerea</i>	Grey-shanked douc langur	Vietnam
<i>Rhinopithecus avunculus</i>	Tonkin snub-nosed monkey	Vietnam
<i>Nomascus nasutus hainanus</i>	Hainan black-crested gibbon	China (Hainan Is)
<i>Hoolock hoolock hoolock</i>	Western hoolock gibbon	Bangladesh, India
<i>Pongo abelii</i>	Sumatran orangutan	N. Sumatra
MADAGASCAR		
<i>Prolemur simus</i>	Greater bamboo lemur	Madagascar
<i>Eulemur albocollaris</i>	White-collared lemur	Madagascar
<i>Propithecus candidus</i>	Silky sifaka	Madagascar
<i>Lepilemur sahamalazensis</i>	Sahamalaza Peninsula sportive lemur	Madagascar
NEOTROPICS		
<i>Ateles hybridus</i>	Variegated spider monkey	Colombia
<i>Ateles fusciceps</i>	Brown-headed spider monkey	Colombia, Ecuador
<i>Oreonax flavicaudia</i>	Yellow-tailed wooly monkey	Peru

*Table adapted from Mittermeier et al. (2006). Primates in Peril. Primate Conservation 20: 1-28.

Earlier this year the 21st Congress of the International Primatological Society was held in Entebbe, Uganda, bringing together many of the world's leading primatologists and conservationists. The conference sought to address current issues within the field of primate conservation calling for action through communication, global awareness and the support of programmes in habitat countries. Of key importance was the much anticipated 2006 edition of the world's top 25 most Endangered primates; a biannual report produced and reviewed by the IUCN/SSC Primate Specialist Group to highlight those species and sub-species currently deemed in direst need of support and recognition. Since 2000 the Top 25 list has served as a media outreach tool aimed at raising awareness of Critically Endangered primates and their habitats to both the wider conservation community and the educated public as a whole. By focusing on selected species and their global distribution the list aims to raise the profile of particular taxa and regions that are representative of major threats to primate diversity.

This year's definitive list saw the inclusion of a number of new species that have only recently been identified such as the highland mangabey (*Rungwecebus kipunji*) and a yet unnamed species of tarsier endemic to Siau Island. Madagascar, Vietnam and Ghana were once again cited as vulnerable regions for primate populations. However, as a continent Asia showed by far the highest levels of species risk exhibiting an alarming 44% of all primates listed.

Since its inception in 2000 several students at Oxford Brookes have carried

out much-needed scientific studies on a number of the species listed in the report including the silky sifaka, *Propithecus candidus*, (Kelley, 2001); the tarsier, *Tarsius* sp. (Severn, 2004); the grey-shanked douc langur, *Pygathrix nemaeus cinerea*, (Thang, 2003); the Tonkin snub-nosed monkey, *Rhinopithecus avunculus*, (Donaldson, 2001); the northern slender loris, *Loris lydekkerianus nordicus*, (Ablard-Hickman, 2005) and, of course, the Sumatran orangutan, *Pongo abelii*, (Harris, 2003; Campbell-Smith, 2003; Marchal, 2005). In last year's cohort three of the newly listed, high-priority primates were the subject of student's final projects; demonstrating the program's continued commitment to vital conservation research:

- Magnusson Fionn. (2006) Census of the brown-headed spider monkey (*Ateles geoffroyi fusciceps*) in the Andean cloud forest of the Los Cedros.
- Österberg Petra. (2006) Habitat requirements and effects of forest fragmentation on the western hoolock gibbon (*Hoolock hoolock hoolock*) in
- Lawachara
- Parker Lorienne. (2006) The Conservation status of the western purple-faced leaf monkey (*Trachypithecus vetulus nestor*): A pilot study
- Ash Georgina. (2006) Ecotourism and interpretation in Sri Lanka: Visitor perceptions of local primates

Several students from this year's cohort plan to devote their studies to furthering current knowledge of these vulnerable primates including the silky sifaka, the highland mangabey, the cross-river gorilla and the Sumatran orangutan.

The next meeting, which will mark the 22nd congress of the IPS, is due to be held in Edinburgh, Scotland, in 2008.



Survival Strategy or Revenge? Chimpanzee-Human Attacks in Western Uganda

George Owoyesigire

Before commencing my studies at Oxford Brookes I worked with the Uganda Wildlife Authority, for over eight years. I had a range of responsibilities that included tourist infrastructure development, ecological monitoring and data collection, mapping and anti-poaching operations as well as responding and assessing crop damage caused by problem animals around Kibale National Park, Western Uganda. In the following passage I would like to share my experience of interacting with the local communities after a chimpanzee attack.

Primates, particularly great apes are credited for their intelligence, flexibility and persistence; however, it is these attributes that make their cohabitation with humans so challenging frequently resulting in the damage or complete destruction of property and, on occasion, human life. The apes, including chimpanzees, are currently threatened with extinction largely due to habitat loss caused by human activities. As a result, they have generated sympathy from international conservation agencies who have successfully lobbied for their increased protection: An outcome that

leaves local people with limited opportunity to deal with resident primates who may pose a threat to crops, property and their own survival. There are, however, small chimpanzee populations that have found themselves in un-protected forest fragments outside the traditional national parks and wildlife reserves. These chimpanzees are forced to encroach on people's gardens and homes as a result of their limited feeding range and restricted access to other resources. Adjacent communities do not respond positively; instead, the chimps are often harassed and persecuted through hunting and killing.

It is a topic of debate as to why, in many instances, chimpanzees have responded in turn by attacking humans. Chimpanzees naturally eat meat, mainly preying on monkeys and small forest antelopes. But as we continue to destroy the forests and reduce their prey densities, they may be forced to search for alternative sources of meat outside of their natural habitat.

In November 2000, while at Kibale National Park, we received a report that a chimpanzee had attacked and abducted a three-month old child the previous day. Armed with SMG rifles I and three other colleagues set off to the scene of the attack in Rutete Sub-county, Kabarole District. We arrived at the first trading centre, only to be welcomed by angry

and frustrated residents, armed too with pangas (machetes) and spears. They had been in the forest following up the attacker chimp. When they heard that wildlife officials were on their way to capture and remove “their chimp” they, retreated to the centre. Neither were we aware of their operation, nor the gathering in the trading centre. We immediately cocked our guns and took cover in the nearby banana plantation, ready for war. The spear-armed communities and a few other members scampered for their dear lives in fear of being shot.

After the crowd of angry villagers had subsided, we came out of hiding to listen to the grandmother of the attacked child narrating the whole incident as she profusely shed tears. Later we were led to the actual scene of the gruesome attack by the Chairman Local Council of the village, the grandmother, and a few other members who had reported back after realising that we were not harmful. The mother had been out in the fields harvesting her potatoes; she put down her son under the tree shade for a rest. No more than a few minutes elapsed before a chimp emerged from the nearby bush and headed for the baby. Helpless as she was, the mother yelled for help. The chimp ran fast, grabbed the baby and headed back to the bush. A man who had heard the yell, appeared at the site and was directed to the route the chimp had taken, only to find the ape holding the baby. The man held his spear and shouted at the chimpanzee from a distance. The chimp mauled the face of the infant with a huge bite leaving one eye and the nose destroyed, before dropping the baby and running for cover. The child was rushed to a local clinic, where he was referred to a larger

hospital for plastic surgery. The mother sold off her land to meet the high costs of the procedure but unfortunately the infant died a week later; before an operation could be carried out. And so, the mother’s released funds were unable to save the child.

Community expectation

What do the communities expect from the wildlife officials? – Compensation, or, arresting or killing of the notorious chimp.

Unfortunately, the Ugandan wildlife laws do not provide for any form of compensation and we were unable to trace the chimp as it had disappeared into the forest. A few months later I met the cursing child’s grandmother, who had made several trips to the park headquarters, and other government offices, in search of compensation. Despite our assurances that the law made no policy provisions for compensation the politicians had further confused the old woman by their promise to push conservation authorities for help that never materialised.

Later that day a meeting was held in which the communities were advised to keep a vigilant look-out for the killer chimp and report any sightings to the wildlife head office at Isunga. We also highlighted issues of policy, in particular; the law on compensation and the management of problem animals. We promised to dispatch a team of rangers to help guard the locals and identify the killer chimp for further management action. A few months later, the culpable chimpanzee was tracked down by local people in collaboration with park

officials and killed. The local people had nick-named him “Saddam”.

In recent months, another chimp, named by communities as “Kiiki”, has been reported to terrorise the very same area and efforts to follow it up for proper identification and subsequent management action have so far been unsuccessful as the chimp continues to hide and dodge both local and park trackers.

What could be triggering such attacks?

The fact that this area has received more than three chimpanzee attacks in less than ten years has prompted many to question why the resident chimpanzees display such aggression towards humans. My thinking is that, the massive forest destruction in the area has reduced the habitat for chimps and left them with no alternative to hunt for any form of food possible, including humans, since they are known and have been observed

to eat meat at Gombe Stream National Park, Tanzania by the famous primatologist, Jane Goodall.

Professor Richard Wrangham, a Harvard University-based primatologist who has conducted research on chimpanzees at both Gombe and Kibale for over 18 years, has an alternate hypothesis. He believes the first attack in Western Uganda may have started with a chimp hearing the cries of a human baby and interpreting it as the call of a forest duiker, which could have triggered the predatory response. This could be possible, although I myself have never heard the cry of a chimpanzee infant. Chimp young are however born with very brown faces that closely resemble that of a human baby.

After years of persecution and trauma from habitat destruction, hunting and snaring, could chimpanzees be implementing a survival strategy or simply seeking their revenge? I leave it for you!



A song-based survey of the Andean titi monkey (*Callicebus oenanthe*) at Tarangue, with note on their vocalisations

Brooke Aldrich

The cryptic nature of the titi monkey is referred to repeatedly throughout the literature on *Callicebus*, and is often fingered as the reason for exaggeratedly low density estimates. Genus *Callicebus* is, however, highly vocal, engaging daily in ritualized bouts of song that function to define and reinforce the boundaries of

strictly maintained territories. This high audibility could be used as a conservation tool, for surveying and monitoring populations that are difficult to locate visually.

The Andean titi monkey, *Callicebus oenanthe*, is endemic to a tiny region of Northern Peru which is facing high rates of human colonization and attendant deforestation. I conducted a song-based survey of the population of *C. oenanthe* at Tarangue, a 74 ha private reserve near Moyobamba. Triangulation of song was used to map groups of titi monkeys on and around the reserve, and resulted in a

estimated population density of 1.4 individuals per ha - a much higher estimate than that resulting from a visually-based survey conducted three years earlier.

Loud calls and bouts of song were recorded and a brief investigation into the vocal repertoire of the species was conducted. Many of the call types of *Callicebus cupreus* appear to have homologous call types in *C. oenanthe* at Tarangue. Several additional call types were tentatively identified. More recordings and research are necessary to describe the vocal repertoire of *C. oenanthe* in further detail.

Several different colourations and unexpected social groupings are described for the individuals sighted at the reserve. Approximately 20% of observed groups consisted of between six

and eight individuals, which is unusually large for *Callicebus*. It may be that the incessant destruction of habitat occurring in the area surrounding Tarangue has caused the reserve to become a refuge for displaced individuals, and that opportunities for dispersal and establishment of new territories are few or non-existent.

Immediate measures to prevent further destruction or fragmentation within the Andean titi monkey's small geographic range is essential, soon, in order to allow the species to persist. Such measures could include increased financial and logistical support of organizations like Ikamaperou, who own and protect Tarangue. Additionally, larger tracts of habitat could be purchased, protected and managed by large, influential international conservation organizations.



Pictures taken by the author on wild individuals of *Callicebus oenanthe* Photographs by Brooke Aldrich.



Assessing secondary school students' knowledge and attitudes toward non-human primates in Trinidad, W.I.

Allisha Ali

Here, an evaluation of knowledge and attitudes toward Trinidad's only two primate species, the red howler (*Alouatta seniculus insulanus*) and white-fronted capuchin (*Cebus albifrons trinitatis*), among secondary school students, was conducted. An investigation into how students may have acquired their knowledge including a visit to the Emperor Valley Zoo where a critical evaluation of exhibit signage was undertaken. This study also assessed the usefulness of information sources according to the students. Modeled after the studies of Lukas and Ross (2005) and Barney et al. (2005), questionnaires were constructed utilizing photographs for identification, knowledge questions on biology, distribution, abundance and behavioural ecology, and Kellert's attitudinal typology. This was administered to a total of 491 students across Form 1 and Form 4 classes in six secondary schools. Overall, identification ability and knowledge scores were very low with only 10.4% of participants correctly identifying the primates and an average knowledge score of 15.5%. Students identified the howler more often than the capuchin,

urban students correctly identified primates more often than rural students and identification ability differed between schools. Students were more knowledgeable of the howler than the capuchin. Gender, education level and school differences were found between knowledge scores. Students exhibited a more positively-oriented attitude towards the local primate species. In terms of Kellert's attitudinal dimensions, the predominant attitude was ecoscientistic while the least characteristic attitude was utilitarian. Attitudes were found to be different for howlers and capuchins, and among gender and education level groups. No relationship between knowledge and attitudes was ascertained. A high proportion of the sample reported observing a television program and visiting the zoo more than any other source. Exposure to information sources were found to be influenced by gender, education level, school and urban/rural location. Among the sample, television program, books and visit to a national park or wildlife sanctuary were rated the sources most useful in providing information on the local primates. This baseline information is of immense value for the construction of educational initiatives aimed to effectively improve knowledge and attitudes towards local primate species and provides grounds for the flagship designation of these animals.

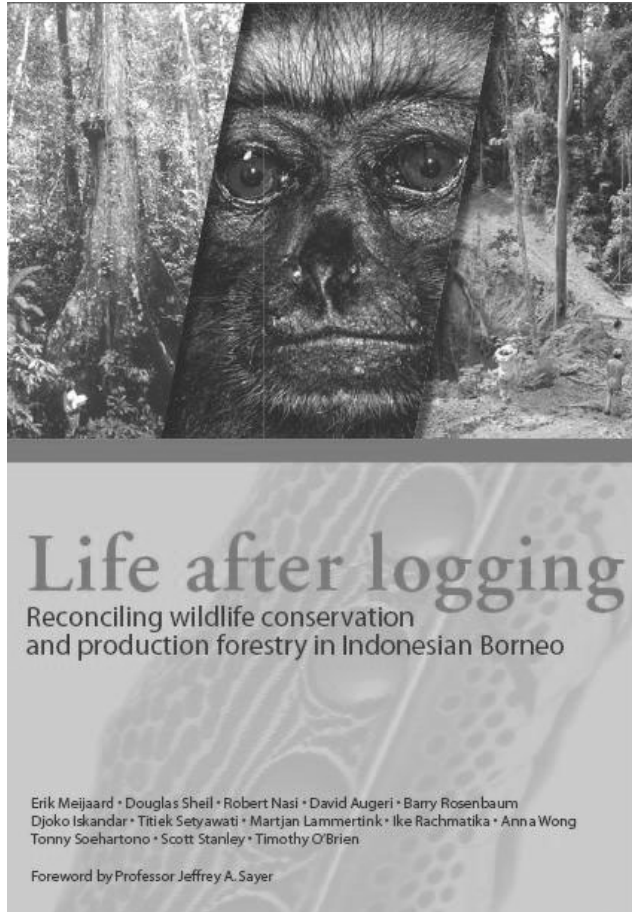


Msc Primate Conservation 2006-2007



Books of Interest – Life after logging

Abstract: “This book presents a technical review of ecological and life history information on a range of Bornean wildlife



species, aimed at identifying what makes these species sensitive to timber harvesting practices and associated impacts. It addresses three audiences: 1) those involved in assessing and regulating timber harvesting activities in Southeast Asia, 2) those involved in trying to achieve conservation goals in the region, and 3) those undertaking research to improve multipurpose forest management. This

book shows that forest management can be improved in many simple ways to allow timber extraction and wildlife conservation to be more compatible than under current practices. The recommendations can also be valuable to the many governmental and non-governmental organisations promoting sustainable forest management and eco-labelling. Finally, it identifies a number of shortcomings and gaps in knowledge, which the hope can interest the scientific community and promote further

research. This review is, an important scientific step toward understanding and improving sustainable forestry practices for long-term biodiversity conservation. Even in the short term, however, significant improvements can be made to improve both conservation and the efficiency of forest management, and there is no need to delay action due to a perceived lack of information. In the longer term it is expected that the recommendations from this review will be implemented, and that further research will continue to help foster an acceptable balance among the choices needed to maintain healthy wildlife populations and biodiversity in a productive forest estate.”

The 370 page .pdf version of Life after logging is freely available for download from various sites on the internet:

(<http://www.cifor.cgiar.org/Publications/Detail?pid=1663>) or at

(http://denverzoo.org/downloads/Logging_mej.pdf)



Bangladesh's last planet of the apes - a study of western hoolock gibbons (*Hoolock hoolock hoolock*) in Lawachara National Park.

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Bangladesh has lost 50 % of its forest cover in 30 years, taking with it eight populations of western hoolock gibbons (*Hoolock hoolock hoolock*) in the last 15 years. Of the world's 700 western hoolock gibbons, 200-300 are spread out in 22 small populations in Bangladesh, the biggest one being Lawachara National Park. *Hoolock hoolock hoolock* is classified by IUCN as Endangered, nationally as Critically Endangered, and the species will be one of the new additions to the IUCN/SSC list over the world's 25 most Endangered primates 2006-2008. This study aimed to assess the effects of forest fragmentation on the population in Lawachara National Park.

Behavioural observations on two gibbon families in habitats with different levels of disturbance were conducted and the vegetation in their territories was sampled for comparison. Lack of hunting for primates and the constant presence of humans in this densely populated country, has made most primates remarkably unafraid, but the study groups reacted slightly differently to observers. The group that appeared more habituated to humans was living in a territory close to the forest boundary, traversed by walking trails and with human settlements on two sides. This group was also having intense interactions with the capped langurs (*Trachypithecus pileatus durga*) and the pig-tailed macaques (*Macaca nemestrina leonina*), whereas the other study group was spending much time

defending an attractive food source from neighbouring gibbon groups.



Female and infant of western hoolock gibbon.
Photograph by Sirajul Hossain

Despite the differences in habitat, inhabitants and neighbours, both gibbon groups followed similar patterns in the major behavioural activities and vegetation preferences. The presence of a small infant slightly increased the selection for dense canopy cover in one of the groups.

A population census was also carried out as a total count in the national park and adjacent areas in the West-Bhanugach reserve forest. The gibbon population was found to be larger than previously estimated and to be spread over an area that stretches beyond the borders of the national park. 62 gibbons in 17 families were found in West-Bhanugach and of them 59 individuals live in a continuous population. One group of 3 individuals was found completely isolated in a small forest patch surrounded by paddy-fields.

The results from this study suggest that gibbons are able to adapt to moderate disturbances and to living in human proximity as long as there are food sources, a canopy height of $\geq 10\text{m}$ and at least partially a dense canopy cover. The

western hoolock gibbon will have a chance to persist in Bangladesh only if the forests are left standing and if populations that are large enough to be viable remain. The Lawachara population is currently viable, but the carrying capacity of the forest should be improved through active vegetation control and further studies should be focused on the population trends of other primates in the area.



Juvenile son and father of western hoolock gibbon. Photograph by Sirajul Hossain.



A comparison of an all-female group of captive chimpanzees (*Pan troglodytes*) and mixed-sex groups

Allyson Macdonald



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Zoo visitors know that male chimpanzees provide noisy and unpredictable outbursts in group situations. Without males it could be said that life is quieter, easier, but maybe also a bit dull? I wanted to find out whether there were differences in activity levels, aggression and social behaviour in the all-female situation, and investigate whether a bunch of girls on their own were more 'Women's Institute' than 'Sex In The City'!

In the wild, female chimpanzees leave their natal groups at puberty, so it's unusual to find groups of females together (Lehmann and Boesch, 2004). It's also rare in captivity. The social

environment has been described as perhaps the most critical factor in chimpanzee well-being (Fouts et al., 1989). So, the bachelorettes at Dudley Zoo offer a rare opportunity to compare an all-female group of chimpanzees with mixed-sex groups. I observed chimpanzees at three UK zoos; the seven females at Dudley Zoo, three males and four females at Twycross Zoo and five males and two females at Whipsnade Wild Animal Park.

The all-female group was significantly less active than the mixed-sex groups ($p < 0.05$ level, two-tailed Mann Whitney U Test of independent samples; $P = 0.0434$). The females were also less active than groups in the wild. At Dudley, social behaviour made up only seven per cent of total group activity, compared to 21% at Twycross and 35% at Whipsnade. There was also a significant difference in being in close proximity to another individual. Mothers and daughters at Dudley chose to spend time near each other, but this wasn't reflected by grooming rates.



Chimpanzees at Dudley Zoo. Photograph by Ally MacDonald.

In fact, there was significantly less grooming in the all-female group ($p = 0.01$ level, two-tailed Mann Whitney U Test of independent samples, $P=0.0045$). The highest level of aggressive incidents was at Twycross Zoo ($n=32$), followed by Whipsnade ($n=8$) with only two at Dudley. Of the 190 displays, only eight were performed by the females in the single-sex group. There was no significant difference in the amounts of abnormal behaviour

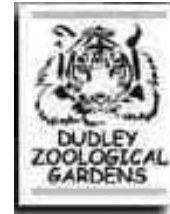
Despite independent variables such as individual personalities, age, enclosure differences and husbandry regimes, there were significant differences between the all-female group and the groups with males. The finding that the females at Dudley was less active than the mixed-sex groups, and less active than wild chimpanzees (Doran, 1997; Matsumoto-Oda and Oda, 2001) could be important because zoo visitors regularly commented about inactivity. The Dudley chimps were significantly less sociable than the mixed-sex groups, which fit the theory, that there's less affiliation with a lack of within-group competition, as there's no need to make alliances (Pazol and Cords, 2005). Pruett and McGrew (2001) assert that wild chimpanzees actually spend less than one-tenth of

their day engaging in social interactions. The two mixed-sex groups show more social behaviour, perhaps because they don't have to forage for food so they have more time to devote to social considerations (Murray, 1998). The Dudley chimps groom each other about as often as groups in the wild, whereas the two mixed-sex groups appear to groom far more often. At Whipsnade, the stress of new chimpanzee introductions had been blamed for overgrooming. At Whipsnade and Twycross, individuals spent a lot of time in close proximity to their favourite grooming partners. However, findings at Dudley mirror those of Palagi et al. (2002) that proximity was often seen among females, but without much grooming. Coe & Nevin (1980) think grooming illustrates social relationships, rather than being connected to dominance hierarchies. There was no obvious dominant animal in the all-female group, but the dominant males made themselves heard with the highest number of displays. It was expected that there would be significantly more displays in the mixed-sex groups (Muller, 2002; Olagi and Gilchrist, 2006). Taylor (2000) contends that males are aggressive for lots of reasons, but female physical aggression is restricted to defence situations. Indeed, I saw female aggression linked to maternal protection of male offspring from other males, a situation where aggression may be expected (Bloomsith and Baker, 2001). There was certainly significantly more aggression when males were around.

In a zoo, it might be appealing to reduce the amount of aggression among captive chimpanzees, and housing females together may be one option. Another

perceived benefit of all-female groups is there's no need for contraception. However, these benefits to the zoo have to be weighed against perceived costs, which appear to be reduced activity levels, less social behaviour and less social proximity. These costs may have an impact on animal welfare, and also affect the perception zoo visitors have of the chimpanzees and the zoo.

These costs may have an impact on animal welfare, and also affect the perception zoo visitors have of the chimpanzees and the zoo.



**Tracking down Sri Lanka's
elusive western purple-faced
leaf monkeys:
City slickers seek new home
in the country**

Lorienne Parker



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I was a little apprehensive when I decided to carry out my masters' dissertation on the western purple-faced leaf monkey (*Trachypithecus vetulus nestor*), one of the 25 most endangered primates in the world (CI/IUCN). Having heard stories of past students trekking through remote jungle for three months without a single monkey sighting, I wondered how I would put together a project if the same happened to me. How wrong I was however, as I found out many of the few remaining populations of the western purple-face are restricted to small fragments in a matrix of urban landscape. This monkey is hence part of daily life for local people, which made tracking them relatively simple for me

but life for the monkeys not quite so easy...

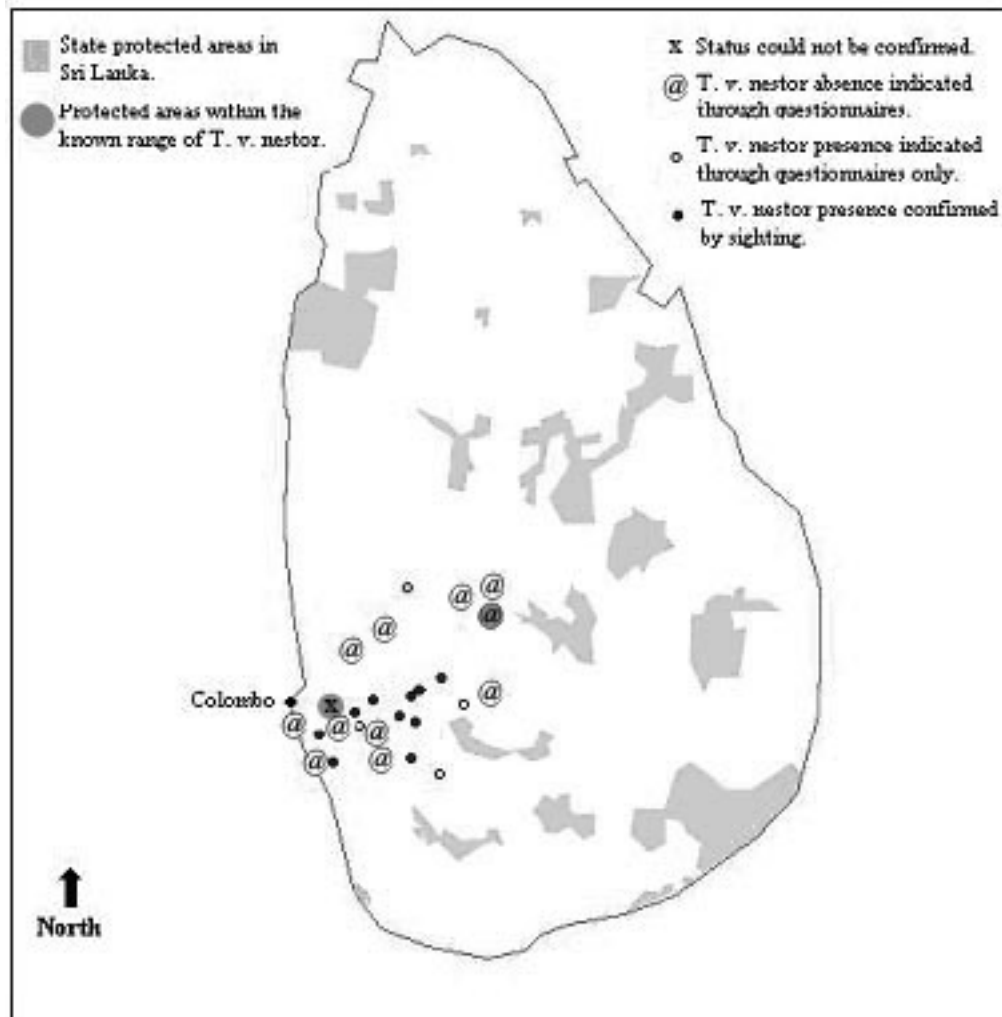
Critically Endangered *Trachypithecus vetulus nestor* is endemic to the Wet Zone of Sri Lanka. Together with the Western Ghats of India, Sri Lanka is considered World Biodiversity Hotspot (Myers *et. al.* 2000), and furthermore one of 11 'hyperhot' hotspots (Brookes *et. al.* 2002). There are four subspecies of *Trachypithecus vetulus* currently recognized, distinguished by both geographical and morphological characteristics. This makes up four of the 12 endemic primate taxa, all of which are listed as Threatened or higher on the IUCN Red List. For *T. v. nestor* a population decline of over 80% in the next 10 years is inferred, mainly due to the vast habitat loss in Sri Lanka (IUCN). Other threats include crop plantations, grazing, shifting agriculture, timber, roads, soil loss/erosion, deforestation, hunting for traditional medicine and food, poisoning, hooking and human interference (Molur *et. al.* 2003).

Despite such impending threats no systematic survey has been undertaken to discover the distribution or abundance

of the western purple-faced leaf monkey. The main aim of this pilot study was to carry out a general assessment of the conservation status of *T. v. nestor* throughout its known range. With a considerable lack of research however, finding even historical sites of presence proved to be the first difficulty. Twenty-six sites were identified from the available literature (Forbes, 1840: Haeckel, 1883: Hill, 1934: Eisenberg & McKey, 1970: Philips, 1981), including a more recent study by Dela (2004), whose main focus was ecology and social biology of the *T. v. nestor* at two

sites. One such historical record dated back over two hundred years (John, 1795), hence why I was a little nervous about still locating the western purple-face!

Interviews with local people were undertaken at each site to establish presence/absence. I was able to locate and investigate 24 sites in total, including three new localities identified through the interviews. Of these 24, *T. v. nestor* presence was confirmed by sightings at ten and indicated through interviews only at a further three sites.



Map of Sri Lanka showing the localities at which the western purple-faced leaf monkey (*Trachypithecus vetulus nestor*) were confirmed by sighting or where presence/absence was indicated by interviews.

Although absence was therefore indicated at the remaining 11 sites, local extinction cannot be assumed as this requires exhaustive surveys over a much longer time frame than was available in this study (Sutherland, 2000). The present distribution of *T. v. nestor* identified through this study shows severe fragmentation both locally and regionally. The 13 sites of *T. v. nestor* presence show such geographical isolation across the Wet Zone it is apparent that there is no chance of natural dispersal between most sites. Furthermore, even within some sites there are habitat patches with functionally separate subpopulations of *T. v. nestor* and hence localized fragmentation. *Trachypithecus vetulus nestor* avoids terrestrial locomotion and thus its ability to move between forest fragments that are not connected by continuous arboreal pathways is likely to be very limited. With no subpopulation inter-actions troops may suffer from genetic drift and inbreeding depression that reduce genetic variation and hence long term fitness and viability (Templeton *et. al.* 1990: Frankham, 1995).

The 13 sites of *T. v. nestor* presence vary considerably in a number of factors: human population, *T. v. nestor* population, habitat type and land-use perhaps being the most apparent. The questionnaire revealed that at certain sites a large proportion of the local people considered *T. v. nestor* to be a nuisance and hence many reported that they would rather there were no monkeys in the local area. Such sites with a high level of human-wildlife conflict had other factors in common that may provide an explanation: a higher *T. v. nestor* population, *T. v.*

nestor largely inhabiting home gardens and hence increased contact between local people and the non-human primates. Crop-raiding for fruits was cited as one of the most frequent reasons why respondents viewed *T. v. nestor* as a pest. Severe habitat destruction and fragmentation in the range of *T. v. nestor* is likely to be the primary cause of the crop-raiding of this naturally folivorous primate and hence the subsequent conflict with local people.

In conclusion population numbers of *T. v. nestor* indicated through this study are critically low and sites severely fragmented. This makes local extinction inevitable at some sites with no chance of recolonization. The translocation of individuals to suitable, protected habitats must be considered for demographic and genetic management and also to relieve some of the conflict with humans. Although the developed landscape at many sites in which *T. v. nestor* is increasingly restricted meant that this primate was less elusive than I first had worried, for these Critically Endangered primates urban living brings about many problems. A considerable amount of conflict was identified at such sites and it was reported to result in the individuals being shot for crop-raiding. Electrocution from power lines has also reportedly killed many monkeys, as they try to find their way between the fragmented forest patches amongst a matrix of developed land. This preliminary study has obtained critical baseline data providing the groundwork for much needed further research and essentially a conservation action plan to be undertaken for *Trachypithecus vetulus nestor*.

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Saving Slow Lorises

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Slow lorises (genus *Nycticebus*) are plagued with taxonomy, distribution and behaviour questions as a result of them being difficult to spot in their natural environments. Lack of sufficient field data has previously left conservation organizations hesitant to classify slow lorises as a conservation priority. Even with several quantitative studies confirming slow lorises as the number one protected primates in Indonesian animal markets, nothing could be done. ProAnimalia Indonesia and Oxford Brookes University are teaming up to create a multifunctional slow loris rescue and rehabilitation centre specifically designed for their release back into their natural environments or into a sanctuary setting. My dissertation explored aspects that need to be considered for the success of such a programme, while conducting pilot studies on taxonomy and behaviour.



Nycticebus coucang. Photograph by K.A.I. Nekaris.

Taxonomy is a key factor to many aspects of this project. First, accurate taxonomic classification is required to appropriately care for captive slow lorises. Second, as a release project, accurate taxonomic classification is

required to determine suitable release sites within their natural distribution. This type of data can also contribute to evidence of where (therefore, which species) is most vulnerable to slow loris trade activity.

Thirty-four confiscated slow lorises at the Schmutzer Primate Centre were used to collect morphometric data. Three species were represented in this sample: *N. coucang*, *N. menagensis* and *N. javanicus*. The variables that defined species classification were: presence/absence of an enclosed dorsal stripe, dorsal stripe length, dorsal stripe colour, forehead colour, head with body length, average hair length and humerofemoral indices.

Knowledge of natural behaviour is important for the appropriate care of captive slow lorises for enrichment purposes; provoking natural behaviour in the rehabilitation process will be crucial for the survival of released individuals and the success of this project.

A pilot study was therefore conducted on slow loris behaviour in reference to enrichment at the Schmutzer Primate Centre, with non-enriched enclosures (consisting of two potted plants) and enriched (consisting of additional horizontal bamboo branches, a suspended tyre termite dispenser, and several suspended ropes). Data were collected on behaviour, height and substrate orientation.

Substrate orientation and enclosure condition were the only significant relationship, with horizontal substrate use observed more frequently in the enriched enclosures. Although sample size was small, this study did reveal

information that should be further researched; for instance, captive data results differed from the few field study results available. Why and how can we alter enclosure design to reflect more natural behaviour?



Nycticebus javanicus. Photograph by K.A.I. Nekaris

When data collection was completed, many positive opportunities followed. First, the data from this study contributed to the Indonesian slow loris

data forms used for Noel Rowe's new edition of "The Pictorial Guide to Living Primates". Second, these data were used to support an elevation in conservation status for all Indonesian slow loris species at the IUCN Red List conference in Cambodia this September.

Although these data have already been used for the benefit of slow loris conservation, much more effort is necessary. Still left to be done is an updated, accurate distribution of slow lorises, habitat assessment for release sites, further research on taxonomy and behaviour and securing funding for these projects and the rescue, rehabilitation and release programme.

As this project will combine research and conservation objectives, future captive and field data on slow lorises will influence conservation policy while the rescue centre will save animals that have been affected by the trade.



Feasibility study for population reinforcement of the brown headed spider monkey (*Ateles geoffroyi fusciceps*), Ecuador.

Sam Shanee

The brown headed spider monkey is listed as Critically Endangered by the IUCN, with an estimated population of less than 250 individuals in the wild. This sub-species is endemic to Ecuador and its range is limited to the Cotacachi-Cayapas and Los Cedros reserves, a total area of just over 50,000 ha. The purpose of my study was to determine whether or not suitable conditions exist for a reinforcement program.

Population reinforcement can be defined as the release of animals to an area with an existing population of conspecifics; this is generally done for one of two reasons firstly, as a conservation measure to bolster the wild population and so increase its chance of persistence and secondly, as a welfare initiative to improve the quality of life of captive animals.

To evaluate the feasibility of reinforcement, I conducted investigations into habitat quality and carrying capacity of the Los Cedros biological reserve and made a survey of

relevant socio-economic factors in villages surrounding the reserve.

The main complications came from the reserve's high altitude as this may lower food production levels and therefore reduce carrying capacity. Hunting still occurs at fairly high levels in the region but as primates are uncommon near settlements, this may not be a problem.

Although large areas are either devoid of, or under-populated by spider monkeys, I was not able to determine whether or not these are of a high enough quality to support additional animals. It is mainly for this reason that I have recommended against the use of

reinforcement as a means of conserving this sub-species, at least until further investigation.



University Events

Seminar Series:

The Seminar Series is made up of a number of guest lecturers who have been invited to present their research at Oxford Brookes. The seminars are open to everyone, not just the students from the primate conservation MSc. There is generally one seminar each week which is given on Monday evenings.

We are still in the process of recruiting speakers for our spring semester. If you are interested in attending part of our Seminar Series a list of upcoming guest speakers will soon be available on our website: <http://ssl.brookes.ac.uk/primate/lecture-series.htm>. The website will also contain information of where each seminar will take place. Directions to our Headington campus can be found at: <http://www.brookes.ac.uk/findus>

To give you an example of the seminars given, here is the list of the guest lecturers from the autumn semester of 2006:

4 October 2006

Chris Huhne MP; Liberal Democrats Shadow Spokesperson for the Environment
'Politics and Conservation – can politics really sort it out?'

9 October 2006

Dr. Stefan Merker; Institute of Anthropology, Johannes-Gutenberg University, Mainz
Tarsiers: Ecology, Evolution and Conservation of Sulawesi's Tiny Primate'

16 October 2006

Dr. Bryan Carrol; Bristol Zoo
'Primate Conservation at Bristol Zoo'

23 October 2006
Dr. Cheryl Asa
'Canid social systems in perspective'

30 October 2006
Dr. Mika Peck
'Grassroots conservation – Parabiologists to the rescue?'

6 November 2006
Dr. Caroline Ross; University of Roehampton
'Crop raiding and baboon ecology in Nigeria'

20 November 2006
Dr. Eric Arnhem; Free University of Brussels
'Comparative analysis of the impact of selective logging on spatial distribution of great apes in an active logging concession of southeastern Cameroon'

27 November 2006
Amanda Webber and Graham Wallace; Oxford Brookes University
'Crop raiding around Budongo forest, Uganda: research methods'

If you want to share your research with us and are interested in becoming a guest speaker please feel free to contact Prof. Simon Bearder at:

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